

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An unmanned control system for a craft having two wing control surfaces spaced apart at different points along a main body section of the craft, the unmanned craft system comprising an autopilot control system configured to provide automated synchronized operation of the two wing control surfaces via a control mechanism to achieve ~~for~~ continuous variable displacement of the wing control surfaces in flight,

wherein the autopilot control system is configured to in flight for manoeuvre an axis of the main body section relative to the flight path velocity vector to minimize an with control to a predetermined angle of attack and attitude relationship of the craft during a sustained manoeuvre towards a target intercept at zero angle of incidence.

2. (Cancelled)

3. (Currently Amended) An unmanned control system for a craft according to Claim 1, wherein the control system is configured ~~comprising means for automated synchronized operation of the two wing control surfaces to maintain continuous variable displacement of each wing control surface via independent actuation under the action of a control routine.~~

4. (Currently Amended) An unmanned control system for a craft according to Claim 3 1, wherein the comprising means for independent actuation of both each wings control surface under a control routine involving a soft comprises a variable gearing actuation mechanism.

5. (Currently Amended) ~~An unmanned control system for a craft according to Claim 1, wherein the autopilot control system is configured to provide comprising means for a demand manoeuvre to act along an axis normal to a Zero Lift Line and in the plane of manoeuvre.~~

6. (Currently Amended) ~~An unmanned control system for a craft according to Claim 5 4, wherein the Zero Lift Line comprises a line co-incident with the local wind axis velocity vector, acting in the plane of manoeuvre in which the two wing control surfaces are deflected and about which there is no net normal force and moment.~~

7. (Currently Amended) ~~An unmanned control system for a craft according to Claim 5 4, wherein the autopilot control system is configured to provide comprising means to manoeuvre comprising additional automated synchronized control deflection of both wings control surfaces acting normal to the Zero Lift Line in the plane of manoeuvre via the control mechanism under the action of a control routine.~~

8-10. (Cancelled)

11. (Currently Amended) ~~An unmanned control system for a craft according to Claim 1 wherein the craft is an aircraft, marine craft or UAV and wherein the autopilot control system is configured control routine is operable to continually control both wings control surfaces to manoeuvre the craft to maintain optimal forward directional visibility.~~

12. (Cancelled)

13. (Currently Amended) ~~An unmanned control system for a craft according to Claim 1 wherein the craft is a guided missile or torpedo in which the autopilot control system is configured control routine is operable to drive the body an axis of the body~~

under manoeuvre to coincide with the flight path velocity vector to achieve zero angle of incidence (~~zero grazing incidence~~) at target impact for maximum warhead effectiveness.

14-21. (Cancelled)

22. (Currently Amended) ~~An unmanned control system for a craft according to Claim 1 wherein the craft comprises a marine craft.~~

23. (Currently Amended) ~~An unmanned control system for a craft according to Claim 1 wherein the craft comprises a missile.~~

24. (Currently Amended) ~~An unmanned control system for a craft according to Claim 1 wherein the craft comprises a torpedo.~~

25-28. (Cancelled)

29. (Currently Amended) ~~An unmanned control system for a craft according to Claim 1 wherein the autopilot control system is configured comprising means to adjust, at an instant in time, the wing control surfaces via the control mechanism setting to effect configuration of the Zero Lift Line and initiate manoeuvre relative to the Zero Lift Line in any plane of manoeuvre.~~

30. (Currently Amended) ~~An unmanned control system for a craft according to Claim 1 having a controller in which the autopilot control system is configured to provide, selectively as required:-~~

constant speed;

variable speed;

proportional rotation and/or translation movement of control surfaces

under independent actuation via the control mechanism;

geared rotational and/or translational movement of control surfaces under independent actuation via the control mechanism;

variable rotational and/or translational movement of control surfaces under independent actuation via the control mechanism.

31. (Cancelled)

32. (Currently Amended) A method of controlling an unmanned craft having two wing control surfaces spaced apart at different points along a main body section of the craft, the method comprising: providing, by an autopilot control system via a control mechanism automated synchronized operation of the two wing control surfaces ~~for to~~ achieve continuous variable displacement in flight ~~for to~~ manoeuvre of the main body relative to the flight path velocity vector to minimize an ~~with control to a predetermined~~ angle of attack ~~and attitude relationship~~ of the craft during a sustained manoeuvre towards a target for achieving a target intercept at zero angle of incidence.

33. (Cancelled)

34. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 ~~18~~ further comprising ~~automated synchronized operation of the two wing control surfaces to maintaining~~ continuous variable displacement of each wing surface via independent actuation of each wing control surface ~~under the action of a control routine.~~

35. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 ~~18~~ further comprising independent actuation of ~~both~~ each wings

control surface under a control routine and involving operation of a soft actuation by a variable gearing actuation mechanism.

36. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 ~~18~~ further comprising implementing a demand manoeuvre acting along an axis normal to a Zero Lift Line and in the place of manoeuvre.

37. (Currently Amended) A method of controlling an unmanned craft according to Claim 36 ~~18~~ wherein the Zero Lift Line comprises a line co-incident with the local wind axis velocity vector, acting in the plane of manoeuvre in which the two wings are deflected and about which there is no net normal force and moment.

38. (Currently Amended) A method of controlling an unmanned craft according to Claim 36 ~~18~~ comprising providing additional automated synchronized ~~control~~ deflection of both wings acting normal to the Zero Lift Line in the plane of manoeuvre ~~under the action of a control algorithm routine.~~

39-41. (Cancelled)

42. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 ~~18~~ wherein the craft is an aircraft, marine craft or UAV and wherein the autopilot control system ~~the method comprising~~ continually controlling both wing control surfaces to manoeuvre the craft for optimal forward directional visibility.

43. (Cancelled)

44. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 ~~18~~ wherein the craft is a guided missile or torpedo and ~~the method comprising~~ wherein the autopilot drivesing the body axis under manoeuvring of an axis

of the main body to coincide with the flight path velocity vector ~~for~~ to achieve zero angle of incidence (~~zero grazing incidence~~) at target impact for maximum warhead effectiveness.

45-49. (Cancelled)

50. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 18 ~~comprising~~ wherein the autopilot control system movesing substantially all of one or more of the wing a control surfaces via the control mechanism ~~moveable under the automated synchronised operation.~~

51-52. (Cancelled)

53. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 18 wherein the craft comprises a marine craft.

54. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 18 wherein the craft comprises a missile.

55. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 18 wherein the craft comprises a torpedo.

56. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 18 wherein the craft is unmanned.

57-59. (Cancelled)

60. (Currently Amended) A method of controlling an unmanned craft according to Claim 32 18 ~~comprising~~ wherein the autopilot control system adjustsing, at an instant in time, the wing control surfaces via the control mechanism ~~setting~~ to effect

configuration of the Zero Lift Line and initiate manoeuvre relative to the Zero Lift Line in any plane of manoeuvre.

61. (Currently Amended) A method of controlling an unmanned craft according to Claim 32-48 wherein the autopilot control system operates the ~~comprising~~ operating a controller mechanism to provide, selectively as required:-

constant speed;

variable speed;

proportional rotation and/or translation movement of control surfaces under independent actuation;

geared rotational and/or translational movement of control surfaces under independent actuation;

variable rotational and/or translational movement of control surfaces under independent actuation.

62. (Cancelled)

63. (Currently Amended) A computer program residing on a computer readable medium product directly loadable into the internal memory of a digital computer, comprising software code portions for performing the method of Claim 32-48 when said product is run on a computer.

64. (Currently Amended) A computer program residing on a computer readable medium directly loadable into the internal memory of a digital computer, comprising software code portions for performing the method of Claim 32-48 when said program is run on a computer.

65. (Cancelled)

66. (Cancelled)

67. (Added) An unmanned craft according to claim 1 in which substantially all of one or more of the wing control surfaces is moveable under control actuation by the control mechanism.

68. (Added) An unmanned craft according to claim 1 wherein one or more of the wing control surfaces comprise a trailing edge flap attached to a lifting surface of the main body.

69. (Added) An unmanned craft according to Claim 1 wherein the craft is an aircraft, marine craft or UAV and wherein the autopilot control system is configured to continually control both wing control surfaces to manoeuvre the craft for optimal fuel efficiency.

70. (Added) An unmanned craft according to Claim 1 wherein the craft is a guided missile or torpedo in which the autopilot control system is configured to continually position the manoeuvring main body at an angle of incidence to the flight path velocity vector for optimal homing onto a target.

71. (Added) An unmanned craft according to Claim 1 wherein the autopilot control system is configured to provide identical rotational or translational movement of the two wing control surfaces.

72. (Added) An unmanned craft according to Claim 1 wherein the autopilot control system is configured to provide proportional rotational or translational movement of the two wing control surfaces.

73. (Added) An unmanned craft according to Claim 1 wherein the autopilot control system is configured to provide geared rotational or translational movement of the two wing control surfaces.

74. (Added) An unmanned craft according to Claim 1 wherein the autopilot control system is configured to provide variable rotational or translational movement of the two wing control surfaces.

75. (Added) An unmanned craft according to Claim 1 wherein the craft comprises more than two wing control surfaces.

76. (Added) An unmanned craft according to Claim 1 wherein substantially all of one or more of the wing control surfaces is moveable via the control mechanism.

77. (Added) An unmanned craft according to Claim 1 wherein the craft comprises an aircraft.

78. (Added) An unmanned craft according to Claim 1 wherein the autopilot control system is configured to off-set an axis of the main body section relative to an instantaneous flight path velocity vector.

79. (Added) An unmanned craft according to Claim 1 wherein the autopilot control system is configured to effect an applied manoeuvre about an instantaneous Zero Lift Line.

80. (Added) An unmanned craft according to Claim 1 wherein the autopilot control system is configured to maintain a constant speed, V .

81. (Added) A method of controlling an unmanned craft according to Claim 32 comprising moving substantially all of one or more of the wing control surfaces via the control mechanism.

82. (Added) A method of controlling an unmanned craft according to Claim 32 comprising moving a trailing edge flap attached to a lifting surface of the main body.

83. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the craft is an aircraft, marine craft or UAV and wherein the autopilot control system continually controls both wing control surfaces to manoeuvre the craft for optimal fuel efficiency.

84. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the craft is a guided missile or torpedo and wherein the autopilot continually positions the manoeuvring main body at an angle of incidence to the flight path velocity vector for optimal homing onto a target.

85. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the autopilot control system provides identical rotational or translational movement of the two wing control surfaces.

86. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the autopilot control system provides proportional rotational or translational movement of the two wing control surfaces.

87. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the autopilot control system provides geared rotational or translational movement of the two wing control surfaces.

88. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the autopilot control system provides variable rotational or translational movement of the two wing control surfaces.

89. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the autopilot control system moves more than two wing control surfaces.

90. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the craft comprises an aircraft.

91. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the autopilot control system off-sets an axis of the main body section relative to an instantaneous flight path velocity vector.

92. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the autopilot control system effects an applied manoeuvre about an instantaneous Zero Lift Line.

93. (Added) A method of controlling an unmanned craft according to Claim 32 wherein the autopilot control system maintains the craft at a constant speed, V .